

### REMARKS

The present application relates to hybrid maize plant and seed 39M27. Claims 5-61 have been canceled. Claims 9-19, 21-32 and 34-40 were previously canceled in the Amendment submitted on April 14, 2003. Claims 62-91 have been added. Applicant respectfully requests consideration in view of the following remarks.

#### Detailed Action

##### *A. Status of the Application*

Applicant acknowledges the rejection of claims 6, 11, 15, 19, 21, 28, 32-34, and 38-40 under 35 U.S.C. § 112, second paragraph, as withdrawn in light of the claim amendments or cancellations. The rejection of claim 33 under 35 U.S.C. § 112, first paragraph, is acknowledged as withdrawn in light of the deposit of inbred maize plants GE516214 and GE533139 with the ATCC.

##### *B. Claim Objections*

Applicant acknowledges the objection of claims 20 and 50 under 37 C.F.R. § 1.75(b), as being duplicate claims. Applicant has canceled claims 20 and 50, thus rendering this objection moot.

##### *C. Newly Submitted Claims*

Applicant acknowledges the addition of new claims 62 through 90, as specifically stated by the claims faxed by Examiner David Fox on November 15, 2002 and the new sample claim submitted by Supervisory Patent Examiner Amy Nelson via e-mail on August 7, 2003 and August 25, 2003 and September 2, 2003 and per the meeting of supervisory and primary Examiners on September 11, 2003. The new claims do not add new matter as there is support for the claims in the originally filed specification. Support for the specific items noted in the claims faxed by Examiner Fox can be found within the specification for *Bacillus thuringiensis* on page 30; for imidazolinone, sulfonylurea, glyphosate, glufosinate, L-phosphinothricin, triazine, and benzonitrile on pages 32-33; for phytase on page 33; for stearyl-ACP desaturase, fructosyltransferase, levansucrase, alpha-amylase, invertase and starch branching enzyme on pages 33-34; and increased amylose starch on page 34.

**Rejections Under 35 U.S.C. § 112, Second Paragraph**

Claim 8 remains rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention, for the reasons of record stated in the office Action mailed January 13, 2003.

Although not acceding to the Examiner's rejection, in order to expedite prosecution Applicant has canceled claim 8, thereby rendering this rejection moot.

Claims 42-49, 53, 55, 59, and 60 stand rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 42 and 47 stand rejected as indefinite for the terminology "value added trait" as the Examiner states the specification does not clearly define the recitation. The Examiner further states the claims are indefinite due to improper antecedent basis.

Applicant has now canceled claims 42 and 47, thus alleviating this rejection.

The Examiner rejects claims 43 and 48 for the recitation "derivative thereof or a synthetic polypeptide modeled thereto" rendering the claims indefinite.

Applicant has canceled claims 43 and 48, thereby alleviating this rejection.

Claim 45 stands rejected as indefinite because the last line of the claim is not consistent with the preamble.

Applicant has canceled claim 45, alleviating this rejection.

Claim 46 stands rejected as indefinite in the recitation "said plant having received all of its alleles from maize hybrid plant 39M27".

Applicant has now canceled claim 46, thus alleviating this rejection.

The Examiner rejects claim 53 as indefinite for the recitation "an inbred parent plant" as it is not clear if the inbred plant in the recitation is the same as the inbred plant in the recitation "said inbred parent" in line 5.

Although not acceding to the Examiner's rejection, in order to expedite prosecution Applicant has canceled claim 53, thereby alleviating this rejection.

Claim 55 stands rejected as indefinite for the recitation "genetic identity" in line 2 as the Examiner states it is not clear what is meant by this recitation: phenotypic traits, alleles, nucleotide sequences, etc.

Applicant has now canceled claim 55, alleviating this rejection.

The Examiner rejects claim 59 as indefinite because it is dependent on itself.

Applicant has canceled claim 59, thus alleviating this rejection.

Claim 60 is rejected as indefinite because it does not recite any positive method steps.

Applicant has now canceled claim 60, thereby alleviating this rejection.

In light of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

**Rejections Under 35 U.S.C. § 112, First Paragraph**

Claims 41-43, 45-49, and 54-61 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record stated in the Office Action mailed January 13, 2003.

Although not acceding to the Examiner's rejection, to expedite prosecution Applicant has canceled claims 41-43, 45-49, and 54-61, thereby rendering this rejection moot. Applicant has added new claims 62-90 as specifically stated by the claims faxed by Examiner David Fox on November 15, 2002 and the new sample claim submitted by Supervisory Patent Examiner Amy Nelson via e-mail on August 7, 2003 and revised via telephone on August 25, 2003 and September 2, 2003 and per the meeting of supervisory and primary Examiners on September 11, 2003. The new claims do not add new matter as there is support for the claims in the originally filed specification as described *supra*.

Claims 46, 54, and 55 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record in the Office Action mailed January 13, 2003.

Applicant traverses this rejection. Nevertheless, in order to expedite prosecution claims 46, 54, and 55 have been canceled and new claims 62-90 have been added as disclosed *supra*. Applicant requests reconsideration.

Claims 45-49 stand rejected under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the

art to which it pertains or with which it is most nearly connected, to make and/or use the invention. The Examiner states that Hunsperger *et al.*, Kraft *et al.*, and Eshed *et al.* teach that it is unpredictable whether the gene or genes responsible for conferring a phenotype in one plant genotypic background may be introgressed into the genetic background of a different plant, to confer a desired phenotype in said different plant.

Applicant respectfully traverses this rejection. Applicant has provided assurance that at least 2500 seeds of hybrid maize plant 39M27 and the inbred parents GE516214 and GE533139 have been deposited with the ATCC. In view of this assurance, the rejection under 35 U.S.C. § 112, first paragraph, should be removed. (MPEP § 2411.02). Although not acceding to the Examiner's rejection, to expedite prosecution the Applicant has canceled claims 45-49, thereby rendering this rejection moot. Applicant has added new claims 62-90, as disclosed *supra*. It is respectfully submitted that Applicant's claims are sufficiently described and enabled by the specification.

In addition, Applicant asserts that the introgression of mutant genes and transgenes is easily, routinely and extensively practiced by those of ordinary skill in the art. Backcrossing has been known since the 1920's and, because of its predictability, is the method preferred by commercial plant breeders to introduce transgenes into already developed and tested material. An example of how one of ordinary skill in the art can transfer a gene conferring a qualitative trait into a variety through backcrossing is demonstrated by the fact that the commercial market now distributes a multitude of products produced in this manner. Such conversion lines are easily developed without undue experimentation.

Further, the Applicant would like to reiterate that a patent application "need not teach, and preferably omits, what is well known in the art." *Hybritech Inc. v. Monoclonal Antibodies Inc.*, 802 F.2d 1367, 231 U.S.P.Q. 81 (Fed. Cir. 1986); MPEP § 601.

Applicant also respectfully disagrees with the Examiner as to what is taught by Hunsperger *et al.* Hunsperger *et al.* merely teaches that a gene that results in dwarfism of a petunia plant can be incorporated into other genetic backgrounds of the petunia species (See column 2, line 67 to column 3, lines 1-4). Hunsperger *et al.* merely discusses that the level of the expression of that gene differed in petunia plants of different genetic backgrounds. Hunsperger *et al.* succeeded in incorporating the gene into petunia plants of different genetic backgrounds. In fact, the USPTO in Hunsperger *et al.* allowed claims to any petunia plant comprising genes for

dwarfism. Therefore, Hunsperger *et al.* supports the fact that one can introgress a specific trait into a recurrent parent through backcross conversion. Applicant's specification provides ample disclosure of starting materials such as, maize inbred line 39M27, a discussion of traditional breeding methods, and examples of transgenes and naturally occurring genes that may be used in such methods. Hallauer *et al.* (1988) on page 472, submitted in the Information Disclosure Statement, states that, "For single gene traits that are relatively easy to classify, the backcross method is effective and relatively easy to manage." The teaching of Hallauer *et al.* relates specifically to corn breeding and corn inbred line development.

The Examiner goes on to state that, "Kraft *et al.* teaches that linkage disequilibrium effects and linkage drag prevent the making of plants comprising a single gene conversion, and that such effects are unpredictably genotypic specific and loci-dependent in nature" (page 323, column 1, lines 7-15). Applicant disagrees that the article states such points. Kraft *et al.* makes no mention of a plant comprising a single gene conversion or the use of backcrossing. Further, Kraft *et al.* relates to linkage disequilibrium and fingerprinting in sugar beet, a crop other than maize. Kraft *et al.* states, on page 326, first column, "The generality of our results for other crop species needs to be investigated."

It is understood by those of skill in the art that backcross conversions are routinely produced and do not represent a substantial change to a variety. The World Seed Organization, on its web site, writes, "The concept of an essentially derived variety was introduced into the 1991 Act of the UPOV Convention in order to avoid plagiarism through mutation, multiple backcrossing and to fill the gap between Plant Breeder's Rights and patents." As determined by the UPOV Convention, "essentially derived varieties may be obtained for example by the selection of a natural or induced mutant, or of a somaclonal variant, the selection of a variant individual from plants of the initial variety, backcrossing, or transformation by genetic engineering.

The Examiner goes on to state that, "Eshed *et al.* teaches that in plants, epistatic genetic interactions from the various genetic components comprising contributions from different genomes may affect quantitative traits in genetically complex and less than additive fashion" (page 1815, column 1, line 1 to page 1816, column 1, line 1). The Applicant would like to point out on page 1816, column 1, lines 1-5 of the Eshed *et al.* article it states, "Recent studies that detected epistasis of selected QTL in *Drosophila* (Long *et al.* 1995), soybean (Lark *et al.* 1995) and maize (Doebley *et al.* 1995; Cockerham and Zeng 1996) did not show a less-than-additive

trend." Emphasis added. The Applicant also adds that transferring a qualitative trait does not require undue experimentation. Please note Hallauer *et al.* (1988) on page 472, submitted in the Information Disclosure Statement, which states, "For single gene traits that are relatively easy to classify, the backcross method is effective and relatively easy to manage." In newly submitted claims 62-90, the genes transferred into 39M27 are now limited to the traits of disease resistance, insect resistance, herbicide resistance, male sterility, waxy starch, and a nucleic acid molecule that encodes an enzyme that modifies fatty acid metabolism, phytic acid metabolism or carbohydrate metabolism. Applicant respectfully requests the Examiner to withdraw this rejection. For the reasons aforementioned, it is respectfully submitted that Applicant's claims are sufficiently described and enabled by the specification.

Claims 41-43 and 53 stand rejected under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention. The Examiner states the claim does not reasonably provide enablement for the claimed method with all transgenes.

Although not acceding to the Examiner's rejection, in order to expedite prosecution Applicant has now canceled claims 41-43 and 53, thereby alleviating this rejection.

In light of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 41-43, 45-49, and 54-61 under 35 U.S.C. § 112, first paragraph.

#### Summary

Applicant acknowledges that claims 1-7, 33, 51, and 52 are allowed.

Applicant has amended the claims as suggested by Examiner David Fox and Supervisory Patent Examiner Amy Nelson as allowable. Applicant submits the claims place the application in condition for allowance and comply with all requirements of form set forth in previous office actions.

#### Conclusion


In conclusion, Applicant submits in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested.

If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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